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TITLE: Golf training video recording - by making two recordings then editing together using split screen technique to give composite video with players technique synchronised

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PATENT-ASSIGNEE: STRONG S D[STROI]

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9004848 A	May 3, 1990	N/A	000	N/A
AU 8944226 A	May 14, 1990	N/A	000	N/A

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ABSTRACTED-PUB-NO: WO 9004848A

BASIC-ABSTRACT: A video recording is made of a first person carrying out the sporting technique in what is taken as a standard manner. Subsequently a second video recording is made of a second person carrying out the same technique in a manner that is assumed to differ from the standard manner.

A composite video recording is produced by editing together the first and second video recordings using a split screen method with synchronisation of the carrying out of the technique by the first and second persons. The composite recording consists of a series of frames each showing a step in the carrying out of the technique by the experienced person and a corresponding step in the carrying out of the technique by the second person.

USE/ADVANTAGE - For e.g. analysing golf swing. Comparison of techniques of successful and well known sportsman with that of trainee is easier.

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS:

GOLF TRAINING VIDEO RECORD TWO RECORD EDIT SPLIT SCREEN TECHNIQUE COMPOSITE VIDEO PLAY TECHNIQUE SYNCHRONISATION

DERWENT-CLASS: P36 P85 W04

EPI-CODES: W04-H; W04-K05; W04-N; W04-X01A;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1990-127418

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(51) International Patent Classification ⁵ : G11B 27/024, A63B 69/00 G09B 5/06, H04N 5/265	A1	(11) International Publication Number: WO 90/04848 (43) International Publication Date: 3 May 1990 (03.05.90)
(21) International Application Number: PCT/GB89/01292 (22) International Filing Date: 27 October 1989 (27.10.89) (30) Priority data: 8825160.8 27 October 1988 (27.10.88) GB (71)(72) Applicant and Inventor: STRONG, Simon, David [GB/GB]; 59 Doneraile Street, London SW6 6EW (GB). (74) Agent: FRANK B. DEHN & CO; Imperial House, 15-19 Kingsway, London WC2B 6UZ (GB). (81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB, IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent), US.		Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: PRODUCTION OF VIDEO RECORDINGS (57) Abstract A method of producing a video recording so as to facilitate a comparison of the performance of an expert (1) with that of a less accomplished player (2) in a sporting technique such as a golf swing. Two video recordings are made and are then edited together using a split screen method to produce a composite video with the techniques synchronised as appropriate.		

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PRODUCTION OF VIDEO RECORDINGS

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This invention relates to the production of video recordings and in particular to the production on a
5 video tape, disc or any other suitable media of a comparison of two sequences of events. The invention is primarily intended for use in teaching sports or assessing sports abilities.

10 In most sports, particular techniques need to be developed. Typical examples are a golf swing, a tennis shot, or a cricket shot. It is well known that training for these sports can involve a video recording of a person's technique which can then be assessed, criticised and so forth.

15 It is also known that people can learn techniques by observing the manner in which successful sportsmen or women carry out the techniques themselves. It is possible to obtain learning courses which consist of lessons on a video recording and include views of
20 techniques being put into practice by an experienced player.

25 A failing of existing systems is that it is not easy for a person to assess how his or technique differs from the ideal. In a lesson, a person may be shown a video recording of his performance for criticism, and may be shown video recordings of more accomplished players for comparison. However, it is difficult for the person to assess the differences in detail.

30 According to the present invention, there is provided a method of producing a video recording for use in

teaching and/or analysing a sporting technique carried out by a person, comprising the steps of:-

5 (a) Making a first video recording of a first person carrying out the sporting technique in what is taken as a standard manner;

(b) Subsequently making a second video recording of a second person carrying out the same technique in a manner that is assumed to differ from the standard manner; and

10 (c) Producing a composite video recording by editing together the first and second video recordings using a split screen method, and synchronising the carrying out of the technique by the first and second persons, whereby the composite recording comprises a series of
15 frames each showing a step in the carrying out of the technique by the experienced person and a corresponding step in the carrying out of the technique by the second person.

20 Thus, when the recording is played, the frames will show on a television screen the first person alongside the second person, carrying out the technique in synchronism as far as is practicable. This greatly facilitates comparing the performances.

25 The first and second persons could both be of the same standard but the method of the invention is particularly intended to permit a person to compare his performance in detail with that of a more experienced player and exponent of the technique. Typically the first person will be a successful and well known sportsperson such as
30 a golfer, cricketer, tennis player or the like. In such a case, the first recording could be made well in advance and if desired a number of techniques could be

stored. The second person will generally be a member of the public wishing to compare performance with the expert. Naturally, the first recording would be used many times to produce separate composite recordings for as many members of the public who have featured in recordings.

Whilst it is conceivable that the method could be carried out using video recordings made by members of the public themselves, for example, this would complicate matters and it might be necessary to keep many different views of the expert so as to correspond to the views that a member of the public might provide. Accuracy would not be guaranteed. Accordingly it is preferred to have a standard camera shot from a particular distance and direction which is under the control of the provider of the composite video recording. This will be used to record the expert and the member of the public. Of course, there could be a number of such standard camera shots depending on the aspects of the technique that it is wished to analyse and compare. Typically, views from two directions would be used.

It may be desirable to have a booth or the like in which the recordings can be made, with video cameras in particular positions, markings for the feet to ensure that the person is in the required standard position relative to the cameras, and so forth. The original recording by the expert can have been made in the same or a similar booth.

The making of the two basic video recordings can be by means of conventional video camera and recording equipment. The editing of the two video recordings together can be achieved using standard editing equipment and split screen methods.

The synchronisation of the respective techniques of the two players may need to be effected by a system of trial and error to a certain extent. It may not be sufficient to simply have e.g. two golf swings start

5 simultaneously. It may be more appropriate in some cases to choose a reference point in the middle of the swing or at the end. The synchronisation may be such that particular portions of the technique can be compared alongside each other even though they would not be

10 reached at the same time from the start of the swing by the two players. The composite recording could have portions with different forms of synchronisation resulting from different reference points being chosen. In many cases, where a general analysis is required, it

15 will be sufficient to have the reference point chosen for synchronisation during as much of the technique as practicable. In other cases it will be desirable to synchronise particular shorter portions rather than the maximum practicable.

20 The composite video recording will usually be in the form of a tape cassette or a disc for use with domestic video machines. The composite recording could include portions of fast or slow motion, frozen frames to enable closer analysis and comparison of techniques, a

25 commentary and/or the display of written matter comparing the techniques or just introducing different parts of the recording, arrows highlighting particular points of a person to be studied, advertising material and so forth. The composite recording could include

30 additional sequences of e.g. either person alone. Naturally, the person playing back the recording will be able to use any controls on his video machine to vary how the recording is displayed.

In commercial exploitation of the method, sites could be set up at golf courses during tournaments, in golf professional's shops at courses, in sports stores, at exhibitions and so forth. Members of the public would
5 have their performances of a technique, such as a series of golf swings, recorded. This recording would be despatched to a central editing studio where the composite video recording would be made and sent to the customer.

10 The accompanying drawing illustrates the appearance of one frame from a video recording made in accordance with the invention. The split screen technique is used to compare the golf swings of an expert (1) and a less experienced and accomplished player (2), with the two
15 players alongside each other on a television screen which is effectively split into two equal parts. As the video recording is played, there would be shown the cumulative effects of the different techniques of the two players. There could even be provided a shot of the
20 flight of the ball after it is hit, to illustrate the end results of the different techniques.

The invention could be extended to cover the study of other techniques. Whilst the principal purpose of the method is to enable the detailed comparison of sporting
25 techniques such as a golf swing, there will be other areas of application.

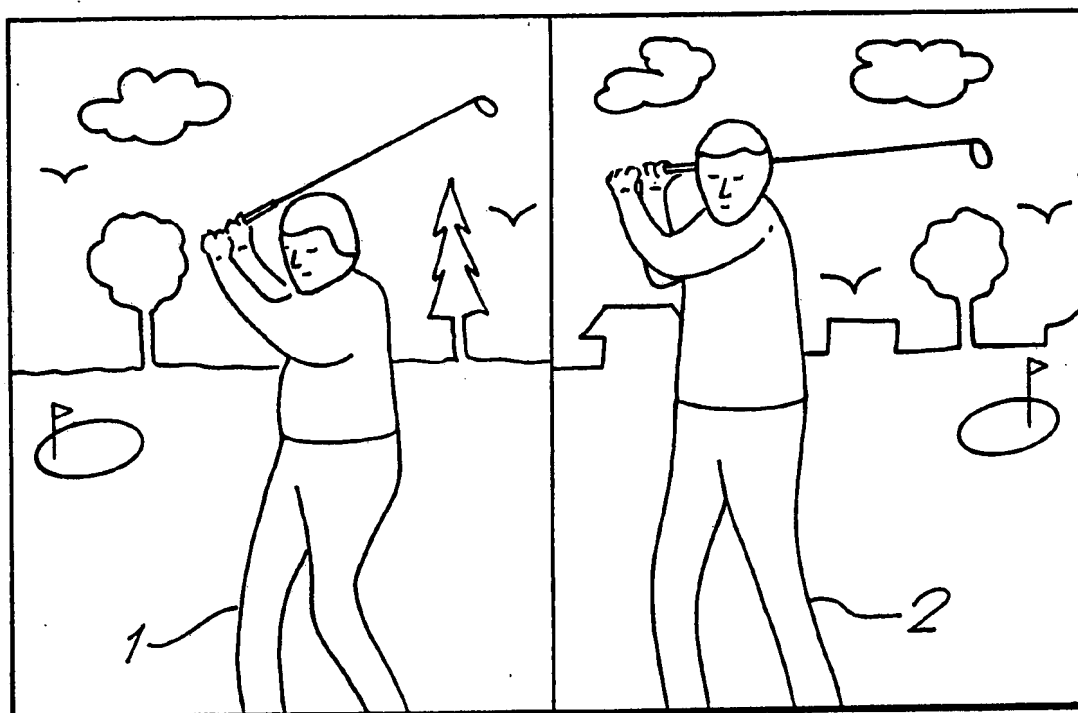
Whilst it is anticipated that in most cases the video recordings will be on e.g. magnetic tapes or optical discs, it would be possible to use cinematographic films
30 and the expression "video recording" is to be so construed where appropriate. Furthermore, for comparison purposes it may be desired to use more than two recordings and to compare three or more players.

CLAIMS

1. A method of producing a video recording for use in teaching and/or analysing a sporting technique carried out by a person, comprising the steps of:-
- 5 (a) Making a first video recording of a first person carrying out the sporting technique in what is taken as a standard manner;
- (b) Subsequently making a second video recording of a second person carrying out the same technique in a manner that is assumed to differ from the standard manner; and
- 10 (c) Producing a composite video recording by editing together the first and second video recordings using a split screen method, and synchronising the carrying out of the technique by the first and second persons,
- 15 whereby the composite recording comprises a series of frames each showing a step in the carrying out of the technique by the experienced person and a corresponding step in the carrying out of the technique by the second person.
- 20
2. A method as claimed in claim 1 in which a reference point for synchronisation is chosen so as to provide synchronisation of the techniques during as much of the techniques as possible.
- 25 3. A method as claimed in claim 1 in which a reference point for synchronisation is chosen so as to provide synchronisation of the techniques during a particular portion of the techniques.

4. A method as claimed in claim 2 or 3 in which the reference point for synchronisation is between the start and end of the techniques.
5. A method as claimed in any preceding claim in which
5 the sporting technique is a golf swing.
6. A method as claimed in any preceding claim in which the first person is a more experienced exponent of the technique.
7. A video recording produced by a method as claimed in
10 any preceding claim.
8. A video recording as claimed in claim 7 in the form of a video cassette or disc for use with domestic video apparatus.

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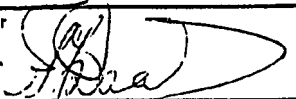
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INTERNATIONAL SEARCH REPORT

PCT/GB 89/01292

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC Int.Cl. 5 G11B27/024 ; A63B69/00 ; G09B5/06 ; H04N5/265		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	G11B ; A63B ; G09B ; H04N	
Documentation Searched other than Minimum Documentation to the extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
Y	ELECTRICAL WORLD. vol. 182, no. 9, 01 November 1974, NEW YORK US page 42 "Videotapes enhance training programs" * page 42, middle col., lines 4-23 * * idem *	1-8
Y	WO, A, 8807735 (ASC DEVELOPMENT CORPORATION) 06 October 1988 see page 5, line 2 - page 22, line 8	1-7
A	see the whole document	8
Y	EP, A, 0221631 (VIDEOSCAN LIMITED) 13 May 1987 see column 3, lines 1 - 4 see column 4, lines 19 - 20 see column 5, lines 31 - 46	1, 8
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<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
31 JANUARY 1990	20 FEB 1990	
International Searching Authority	Signature of Authorized Officer	
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III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
Y	US,A,4377824 (KUPERMAN ET AL.) 22 March 1983 see the whole document	1
A	see the whole document ---	7, 8
A	US,A,3408750 (MCCOLLOUGH ET AL.) 05 November 1968 see the whole document ---	1, 2, 5-8
A	US,A,4015344 (MICHAELS ET AL.) 05 April 1977 see the whole document ---	1-8
A	US,A,3145484 (BAYLEY) 25 August 1964 see the whole document ---	1, 5
A	US,A,4157572 (KENNEDY ET AL.) 05 June 1979 see the whole document ---	1, 2, 7, 8

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

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SA 31911

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-8807735	06-10-88	US-A- 4828500 AU-A- 1593288	09-05-89 02-11-88
EP-A-0221631	13-05-87	GB-A- 2182224 JP-A- 62101190	07-05-87 11-05-87
US-A-4377824	22-03-83	None	
US-A-3408750		None	
US-A-4015344	05-04-77	None	
US-A-3145484		None	
US-A-4157572	05-06-79	None	

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